

Memorandum of Understanding  
Regarding

Efficient Water Management Practices  
by Agricultural Water Suppliers  
in California

Agricultural Water Suppliers Efficient Water  
Management Practices Act of 1990  
AB 3616

November 13, 1996

### A Brief Review of the Memorandum of Understanding - MOU

The AB 3616, Agricultural Efficient Water Management Act of 1990, required the Department of Water Resources to establish an advisory committee consisting of State, federal, and local agencies; agricultural communities; California university system; environmental and public interest groups; and other interested parties to develop a list of efficient water management practices for agricultural water suppliers. In addition, Governor Wilson directed the AB 3616 Advisory Committee to develop a Memorandum of Understanding between the agricultural and environmental communities and other interested parties to further address efficient use of agricultural water in California.

For the past six years, the Committee has worked to fulfill both the AB 3616 requirements and the Governor's request. This document is a product of work by the Committee and diligent input by many agricultural water suppliers.

The MOU establishes the Agricultural Water Management Council and provides guidance for a reporting process and a mechanism by which signatories evaluate and endorse plans. Agricultural water suppliers will advance efficient water management through voluntarily planning, implementing, and evaluating certain irrigation practices.

The plan will include three categories of efficient water management practices:

- List A - Practices that will be implemented by all signatories (e.g. appointing a water conservation coordinator).
- List B - Practices that will be analyzed and must have net benefits to the water supplier before they are implemented, unless they are demonstrably inappropriate (e.g. lining or piping canals).
- List C - Practices that have been implemented at some level by all agencies, yet must be evaluated using the net benefit analysis (e.g. measurement and pricing).

Exhibit E helps guide the agricultural water suppliers who voluntarily sign the MOU in evaluating which EWMs are appropriate for their service area. Exhibit E also explains that EWMs that are already in place or demonstrably inappropriate are exempted from analysis.

DWR and the AB 3616 Committee hope that the MOU and the net benefit analysis will help to create a constructive working relationship between agricultural water suppliers, environmental interest groups, and other interested parties. They also hope that this relationship will advance efficient use of agricultural water in California.

DWR will provide assistance to the Agricultural Water Management Council when formed, and will continue to provide technical assistance to local agencies through many of its agricultural programs.

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REGARDING  
EFFICIENT WATER MANAGEMENT PRACTICES  
BY AGRICULTURAL WATER SUPPLIERS  
IN CALIFORNIA**

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EFFICIENT WATER MANAGEMENT PRACTICES  
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# **MEMORANDUM OF UNDERSTANDING REGARDING AGRICULTURAL WATER MANAGEMENT BY WATER SUPPLIERS IN CALIFORNIA**

This MEMORANDUM OF UNDERSTANDING REGARDING AGRICULTURAL WATER MANAGEMENT BY WATER SUPPLIERS IN CALIFORNIA ("MOU") is made and entered into effective as of the date defined in Section 6.01 among the undersigned parties ("signatories"). The signatories represent agricultural water suppliers throughout the State, environmental interest groups, and other interested parties as defined in Section 1 of this MOU.

## **SECTION 1**

### **DEFINITIONS**

For purposes of this MOU, the following definitions apply:

1.01 Agriculture. The science, art, or act of cultivating the soil or other medium for the purpose of producing food and/or fiber, industrial materials, and energy.

1.02 Agricultural Water Management Council. The deliberative entity formed by the MOU, consisting of signatories of the MOU. The Council will review and comment on Water Management Plans (WMPs), progress reports, and other activities as provided by this MOU.

1.03 Conjunctive Use. The planned management of two or more water resources in order to accomplish the greatest long-term net water management benefit. One goal of conjunctive use is to balance recharge and extraction of groundwater over a given time interval, within limits of acceptable change in the groundwater reservoir, and maximize the beneficial use of water from two or more available water supplies. Correction of existing long-term overdraft is not a prerequisite to a conjunctive use program.

1.04 Conserved Water. That portion of diverted/pumped water previously beneficially used that is conserved as a result of implementation of the Efficient Water Management Practices (EWMPs).

1.05 Efficient Water Management Practice (EWMP). Any of the practices listed in Exhibit A.

1.06 Environmental Interest Group. A nonprofit organization whose primary mission is the protection of the environment and whose primary function is not the representation of trade, industrial, or utility entities.

1.07 Implementation. The act of carrying out a water management plan.

1.08 Net Water Management Benefits. The sum of the benefits less costs of a water management practice. For purposes of this MOU, net water management benefits will be computed using the analysis in Exhibit E.

1.09 Other Interested Parties. Any group or public agency that has a clear interest in promoting efficient agricultural water management. This may include, but is not limited to, California Farm Water Coalition, California Farm Bureau Federation, State and federal agencies, Association of California Water Agencies, associations of water contractors, etc.

1.10 Water Management. The act, manner, or practice of deliberate human control of the quantity and/or quality of a given volume of water, for a specific period of time and within specific spatial boundaries; such waters are received, stored, distributed, used, and/or released for the purposes of efficient water use.

1.11 Water Management Plan (WMP). The WMP submitted to the Council by each signatory water supplier. For purposes of this MOU, each WMP will be prepared pursuant to Exhibit B.

1.12 Water Supplier. Any entity, public or private, which delivers, supplies, or manages water primarily for agricultural purposes, either at the wholesale or retail levels.

## SECTION 2

### PURPOSES

The purposes of this MOU are to: (1) create a constructive working relationship between agricultural water suppliers, environmental interest groups, and other interested parties; (2) establish a dynamic list of EWMPs; (3) establish criteria to evaluate the appropriateness of EWMPs; and (4) implement appropriate EWMPs, while avoiding unnecessary or unreasonable planning, paperwork, or expense for water suppliers, thereby voluntarily achieving more efficient water management than currently exists or may be required by existing law.



## SECTION 3

### LIMITS TO APPLICABILITY OF MOU

3.01 Relationship Between Water Suppliers. No rights, obligations, or authorities between wholesale suppliers, retail agencies, cities, or other water suppliers or their customers are created, expanded, or impaired by this MOU.

3.02 On-Farm Practices. Some of the EWMPs may facilitate improvements in on-farm practices. However, it is not the purpose of this MOU to specifically address on-farm practices.

3.03 Land Conversion. This MOU will not address involuntary land conversion as a water management option.

3.04 Land Retirement. This MOU will not address involuntary land retirement as a water management option.

3.05 Crop Selection. This MOU will not address involuntary crop selection as a water management option.

3.06 Groundwater Production. This MOU will not address involuntary limitations on, or expansion of, groundwater production.

3.07 Reasonable and Beneficial Use.

- (A) This MOU and the procedures it establishes are not intended to define reasonable or beneficial use of agricultural water. It is the intent that the implementation of EWMPs by signatories to this MOU will increase the efficiency of agricultural water delivery and usage. The signatories agree that, subject to applicable laws, when any entity entitled to the use of water under a right or contract does not use all or any part of the entitled water because of implementation of EWMPs, such cessation or reduction in the water use will be deemed equivalent to a reasonable and beneficial use by that entity of the water conserved, if such conserved water is put to a beneficial and reasonable use by either the entity or a transferee.
- (B) The signatories of this MOU may disagree regarding the appropriateness of water conservation criteria adopted by the U.S. Bureau of Reclamation under federal law. The signatories are free to take any position regarding those federal criteria. Any WMP developed pursuant to the federal criteria may be submitted to the Council for endorsement in accordance with Section 4.03 of the MOU.

3.08 Limitations on Existing Rights. This MOU will not alter the rights and duties of the signatories under existing law.

3.09 San Joaquin Valley Drainage Program. This MOU will not address the recommendations made in the San Joaquin Valley Drainage Program report. Signatories are free to take any position regarding the San Joaquin Valley Drainage Program.

3.10 Sustainable Soil Productivity. Sustainable soil productivity and continuation of crop production for generations to come depend on maintaining a favorable soil environment. This MOU will not require conservation of water when such conservation would cause salt build-up or other adverse impact(s) on the soil productivity.

## SECTION 4

### DEVELOPMENT AND IMPLEMENTATION OF WATER MANAGEMENT PLANS (WMPs)

4.01 Water Management Plan (WMP). Each signatory water supplier will develop a WMP for EWMPs and take reasonable steps to implement such a WMP.

- (A) Guidelines for the development of WMPs are set forth in Exhibit B. Each WMP will incorporate definitions, schedules, and other requirements set forth therein, and will be tailored to the conditions existing within the water supplier's district.
- (B)
  - 1. Each WMP will include all EWMPs set forth in Exhibit A, List A.
  - 2. A WMP will also consider all EWMPs set forth in Exhibit A, List B, and will contain those practices found, pursuant to Exhibit E, to generate net water management benefits.
  - 3. The WMP will include other EWMPs set forth in Exhibit A, List C, subject to the results of analyses conducted pursuant to Exhibit E.
- (C) Where two or more EWMPs from Lists A, B, or C are interrelated, implementation options will be considered which focus on the relevant group of EWMPs. The WMP will consider implementing alternatives for each List B or List C EWMP. The water supplier will select the option for each EWMP, or group of EWMPs, pursuant to analysis under Exhibit E.
- (D) Wherever practicable, water suppliers are encouraged to coordinate and consolidate WMPs with other water suppliers within a common watershed or

water service area in order to optimize the use of the available water supply and minimize duplication of effort in developing and administering such WMPs.

- (E) A water supplier may apply to the Council for a variance if preparation of any part of the WMP, including the analysis of any particular EWMP, will not improve net water management benefits or if, in view of the small amount of water served by the supplier, preparation of the analysis would not result in water management benefits sufficient to justify the cost.

4.02 Exemption Criteria. Exhibit E sets forth the exemption criteria and the Net Benefit Analysis that each water supplier will use to evaluate all Exhibit A List B and List C EWMPs in its WMP.

- (A) A water supplier will implement those Exhibit A List B EWMPs in the form(s) found to optimize net water management benefits pursuant to the analysis contained in Exhibit E. A supplier need not implement an Exhibit A List B EWMP if the supplier demonstrates that one or more of the following exemptions applies:
  - 1. EWMP is already being implemented at a satisfactory level; or
  - 2. EWMP is demonstrably inappropriate for implementation by that water supplier; or
  - 3. EWMP is technically infeasible given current technology or prevailing local conditions; or
  - 4. Pursuant to a Net Benefit Analysis performed in accordance with Exhibit E, the implementation of the EWMP will not provide any significant financial benefits for the water supplier during the term of the WMP; or
  - 5. Adequate funds (including funds from other beneficiaries of the WMP) are not available, and cannot reasonably be expected to be made available, for implementation of the EWMP during the term of the WMP; or
  - 6. EWMP will have negative net environmental or third party impacts during the term of the WMP.
- (B) A water supplier will implement each Exhibit A List C EWMP in the form(s) found to optimize net water management benefits pursuant to the analysis in Exhibit E. The current form of implementation for a List C EWMP will suffice if the water supplier demonstrates that, pursuant to exemptions (A)(4) through

(6) above, no other form will improve net water management benefits in comparison to current practice.

(C) The absence of legal authority to implement an Exhibit A List B EWMP will not exempt the water supplier from inclusion of that EWMP in the WMP. Each such EWMP will be included in the WMP on the express condition that its implementation is dependent on securing necessary legal authority. Each such EWMP will be exempt from implementation prior to the next Progress Report (Exhibit C), if the water supplier determines that:

1. Implementation of the EWMP is still not within the legal authority of the water supplier;
2. The water supplier has made a good faith effort to work with any other water supplier or other person that has the legal authority to carry out the EWMP and such effort has not resulted and cannot reasonably be expected to result in implementation by that other water supplier or other person; and
3. The water supplier has made a good faith effort to work with any other water supplier or other person to remove any institutional barriers to the implementation of such EWMP, and such effort has not resulted and cannot reasonably be expected to result in the removal of such barriers.

4.03 Endorsement of WMP. Each signatory water supplier will submit a WMP for the Council's endorsement as provided in Section 5. The format for such WMPs is set forth in Exhibit B.

- (A) Each WMP will be presented to the Council by the due date established by the Council. The Council will forward the WMP to the Department of Water Resources (DWR) for review and comment as scheduled by the Council. DWR will return the WMP with comments to the Council.
- (B) The Council will review and comment on a WMP. If concerns about the adequacy of a WMP are raised, the water supplier and the Council will attempt to resolve these concerns through discussion or modification of the WMP.
- (C) Following such review, the Council may either endorse the WMP or take no action. If the Council takes no action, the Council will, upon request by the water supplier, provide to the water supplier written comments explaining why it did not endorse the WMP. Endorsement of a WMP does not constitute or imply approval of the disposition of the water conserved.

- (D) Each endorsement will remain in effect for the initial term of the MOU, pursuant to Section 6.02, unless the Council does not endorse a water supplier's subsequent Progress Report. The endorsement will be reinstated once the water supplier submits a Progress Report that is endorsed by the Council.

4.04 Review and Implementation of WMP. Each signatory will make a good faith effort to review and provide meaningful input on WMPs. Each signatory water supplier will make a good faith effort to implement its WMP as endorsed by the Council.

4.05 Good Faith Effort. As applied to the review of a WMP, "good faith effort" means a reasonable and prudent review of a WMP or Progress Report. As applied to the implementation of each EWMP, included in an endorsed WMP, "good faith effort" means reasonable and prudent:

- (A) Use of legal authority and administrative prerogatives available to the water supplier as necessary.
- (B) Encouragement of timely implementation of the EWMP by any other water supplier or other person that has the legal authority to implement the EWMP within the water supplier's service area where implementation of that EWMP is not within the legal authority of the water supplier itself.
- (C) Cooperation with other water suppliers and persons, including those who are not a signatory to this MOU.
- (D) Evaluation of the need, if any, for changes in policies of the institutions to which the water supplier is subject, and the initiation of efforts to implement any such changes.
- (E) Other appropriate efforts to achieve the optimal net water management benefit from implementing the EWMPs in an endorsed WMP.

4.06 Schedules of Implementation. Exhibit A sets forth a schedule for implementation of applicable EWMPs. The times specified will commence on the date the water supplier becomes a party to this MOU. Specific schedules for implementation of each EWMP will be identified in the WMP. Each WMP will commit to the implementation of applicable EWMPs. However, the signatories recognize that modifications of the schedules may be necessary for a water supplier, given unique local circumstances. Accordingly, in the Progress Report, a water supplier may propose to modify, with appropriate documentation, the schedule for implementation of an EWMP, if the water supplier determines that:

- (A) A good faith effort has been made to implement the EWMP according to the schedule, but that implementation is not feasible; or

- (B) Implementation of other EWMPs prior to this EWMP will create more net water management benefit than adherence to the endorsed schedule for this EWMP.

4.07 Progress Reports. Following the endorsement of a WMP, each water supplier will report biennially on its implementation by means of a Progress Report, unless the Council requests an interim report. Exhibit C sets forth the format for such Progress Reports.

- (A) Each Progress Report will document conformity with the endorsed WMP, any good faith efforts pursuant to Section 4.05, and any proposed amendments to the endorsed WMP, including the proposed schedule of implementation, which the water supplier is proposing for Council endorsement.
- (B) Each Progress Report will be submitted to the Council. The Council will forward the Progress Reports to DWR for review and comment as scheduled by the Council. DWR will return the reports with comments to the Council.
- (C) Council members will review and may comment on Progress Reports. If concerns are raised about the adequacy of a Progress Report or the implementation of the endorsed WMP, the water supplier and the Council will attempt to resolve these concerns, through discussion, modification of the Report, or adoption of a WMP amendment.
- (D) A Progress Report will be endorsed or not endorsed by the Council under Section 5.07 (B). In the event that the Council does not endorse a Progress Report, the Council will, upon request of the water supplier, provide to the water supplier written comments explaining why it did not endorse the Progress Report. The water supplier will have the opportunity to resubmit a Progress Report.

4.08 Future Revision of EWMPs and Schedules. After the beginning of the initial term of the MOU, as provided in Section 6.02, the Council may:

- (A) delete an EWMP from Exhibit A upon determining that it cannot be structured to provide net benefits for implementation within signatory water suppliers' service areas;
- (B) add an EWMP to Exhibit A upon determining that it can be so structured;
- (C) otherwise alter the composition of Exhibit A;
- (D) redefine individual EWMPs; or

- (E) alter the schedules for implementation of EWMPs under Exhibit A.

4.09 Net Benefit Analysis and Exemption Criteria. Net Benefit Analysis and Exemption Criteria are included in Exhibit E.

## SECTION 5

### AGRICULTURAL WATER MANAGEMENT COUNCIL

5.01 The Agricultural Water Management Council ("Council") is established by this MOU. The signatories agree to the necessary organization and duties of the Council as specified in this MOU. Within 90 days of the effective date of this MOU, the Council will hold its first meeting. DWR will confirm the effective date and will call for an initial meeting of the Council.

5.02 Council Housing and Funding.

- (A) Housing. The Council will be housed by DWR. The Council will act independently of DWR on all technical and policy issues. DWR will be responsible for the Council's administrative and general office needs. DWR will retain the right to withdraw from this relationship at any time upon 180 days written notice to the Council. The Council recognizes that its funding requirements may exceed what DWR is prepared to contribute and that alternative funding may be needed.
- (B) Funding of the Council's Activities. Expenses for normal business and administrative activities of the Council, if any, will be collected from signatories on a voluntary basis. To the greatest extent possible, the Council will also seek funding from outside sources other than signatories, including State and federal agencies.

5.03 Membership. The Council will be comprised of one representative from each of the signatories to the MOU.

5.04 Organization of the Council.

- (A) For the purpose of the Council, the signatories shall consist of three groups defined as follows:

1. Group 1: Water Suppliers
  2. Group 2: Environmental Interest Groups
  3. Group 3: Other Interested Parties
- (B) The Council will be co-chaired by one representative from each of Groups 1 and 2, selected respectively by their group for a term of two years. The meeting Chair will alternate between the co-chairs at each successive meeting.

5.05 Council Responsibilities. The Council will:

- (A) Develop user friendly guidelines to be used by all signatory water suppliers in executing the Net Benefit Analysis for EWMPs (Exhibit E).
- (B) Collect and summarize information on implementation of EWMPs.
- (C) Update the EWMP lists.
- (D) Accept or deny requests for additional parties to join the MOU and assign additional parties to one of the three signatory groups.
- (E) Develop and modify report formats.
- (F) Review and comment on the signatories' draft WMPs.
- (G) Endorse or take no action on the WMP.
- (H) Undertake such additional duties as the members may agree upon.
- (I) Endeavor to assist water suppliers with inadequate staff in complying with planning and reporting requirements.
- (J) Endeavor to secure appropriate funding, with emphasis on federal and State sources, for administration of the MOU as directed by the Council pursuant to Section 5.02 (B). In addition, the Council will support a DWR effort to secure funds for implementation of WMPs. Such funds may be necessary for assisting the Council with the review and evaluation of WMPs and Progress Reports.
- (K) Endeavor to provide assistance to signatory water suppliers in their effort to implement EWMPs.
- (L) Prepare and submit reports as appropriate.



5.06 Reporting. The Council will make its reports available to the State Water Resources Control Board, U.S. Bureau of Reclamation, DWR, and to governing bodies of all Council members according to the outline given in Exhibit D. Such reports will include an annual report, status reports, and periodic updates as directed by the Council. Any member of the Council will be entitled to review and comment on all draft reports. Such comments will be included in any final report at the member's request. All reports of the Council will be made available to the public.

5.07 Voting. All actions of the Council are divided into two categories for the purposes of determining the method of vote.

- (A) Decisions by the Council to modify this MOU and/or its Exhibits to undertake or impose additional responsibilities require:
  - 1. the Council to provide notice to all members at least 60 days in advance of the vote by the Council and to provide the text of the proposed action or modification;
  - 2. a vote in favor of the action or modification by at least two-thirds of the members of Group 1 voting, including votes made in person or in writing; and
  - 3. a vote in favor of the action or modification by at least two-thirds of the members of Group 2 voting, including votes made in person or in writing.
- (B) All other modifications to this MOU and Council actions, including variances to MOU requirements and the endorsement of WMPs and Progress Reports, require the following:
  - 1. a vote in favor of the modifications or action by a simple majority of the members of Group 1 voting, including votes made in person or in writing or by proxy;
  - 2. a vote in favor of the modifications or action by a simple majority of the members of Group 2 voting, including votes made in person or in writing or by proxy; and
  - 3. in the event of a failure to concur, the members of the Council will take no action, except to agree to meet and discuss concerns and potential alterations to this MOU or a WMP in an attempt to resolve issues and reach consensus.
- (C) Group 3 members may fully participate in Council meetings and activities, but do not have voting rights under this MOU.

## SECTION 6

### GENERAL PROVISIONS

6.01 Effective Date of MOU. This MOU shall become effective when at least 15 water suppliers, representing at least 2 million irrigated acres, have become signatories to the MOU.

6.02 Initial Term of MOU. The initial term of this MOU will commence on the effective date and be for a period of five years.

6.03 Renewal of MOU. The MOU will be automatically renewed after the initial term on a five-year basis for all signatories, unless a signatory withdraws as provided in Section 6.04.

6.04 Withdrawal from MOU. Signatories to the MOU may voluntarily withdraw from the MOU in three separate ways:

- (A) Withdrawal Within Initial Five-Year Period. If irresolvable differences regarding comments or implementation of WMP arise, any signatory may withdraw from the MOU by providing written notice to the Council.
- (B) Withdrawal After Expiration of Initial Term. After the initial term of five years, any signatory may declare its intent to withdraw from the MOU unconditionally by providing written notice to the Council.
- (C) Immediate Withdrawal. Any signatory who does not sign a revised MOU, as described in Section 4.08, which requires a two-thirds vote as described in Section 5.07, may withdraw from the MOU by providing written notice to the Council. The withdrawing signatory's commitments under this MOU will be terminated effective immediately upon providing such written notice.
- (D) Effect on Other Signatories. If a signatory withdraws from the MOU under any of the above methods, the MOU will remain in effect as to all other signatories.

6.05 Additional Parties. Additional parties may sign the MOU after the establishment of the Council by providing written notice to and upon approval by the Council. Additional parties will be assigned by the Council to one of the three signatory groups defined in Section 5.04.

6.06 Noncontractual Agreement. This MOU is intended to embody general principles agreed upon between and among the signatories and is not intended to create contractual relationships, rights, duties, or remedies enforceable in a court of law or other adjudicatory forum between or among the signatories.

6.07 Modification. The signatories agree that this writing constitutes the entire understanding between and among the signatories. The general manager, chief executive officer, executive director of each signatory, or their designee, will be deemed to have authority to vote on any modifications to this MOU and its Exhibits as described in Section 5.

6.08 Support. Each signatory will abide by and support each WMP endorsed by the Council, unless upon review of a Progress Report pursuant to Section 4.07, the Council does not endorse the report. Each signatory shall express such support in any regulatory or judicial proceeding in which the signatory participates and which concerns the WMP of the affected water supplier. All signatories agree that the affected water supplier may submit the Council's endorsement of the WMP in any such proceeding as relevant evidence to the efficiency of its water management practices. Endorsement or support of a WMP does not constitute or imply approval of the disposition of the water conserved and is subject to the limitations stated in Section 3.

6.09 Voluntary and Cooperative Agreement. The signatories intend this MOU to be a voluntary and cooperative agreement. If a regulatory agency proposes to adopt this agreement as a rule, signatories are free to take any position regarding such a proposal.

# EXHIBIT A

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D-046082

## **EXHIBIT A**

### **LIST A**

#### **GENERALLY APPLICABLE EFFICIENT WATER MANAGEMENT PRACTICES**

**(REQUIRED OF ALL SIGNATORY WATER SUPPLIERS PURSUANT TO SIGNING OF THE MOU)**

The following EWMPs, not subject to net benefit analysis, will be implemented in a timely manner indicated below by the signatory water suppliers.

- 1. Prepare and adopt a Water Management Plan using as a guideline Exhibit B of this Memorandum of Understanding for Agricultural Water Suppliers.**

Schedule: Within two years

- 2. Designate a Water Conservation Coordinator.**

Schedule: Within three months

Designate a water conservation coordinator to develop and implement the water management plan and Progress Reports.

- 3. Support the availability of water management services to water users.**

Schedule: Within two years

Develop and conduct individual programs or cooperate with other water suppliers in regional programs. Some water suppliers may want to contract or arrange program delivery through consulting firms, Cooperative Extension, or others. The services may include, but are not limited to:

- a. On-farm irrigation and drainage system evaluation (e.g., mobile labs to help optimize irrigation efficiency and distribution uniformity).
- b. Normal year and real-time irrigation scheduling and crop evapotranspiration information (e.g., CIMIS data, crop coefficients).
- c. Surface water, groundwater, and drainage water quality data.

- d. Educational programs and materials for farmers, staff, and public (e.g., soil moisture and salinity monitoring, in-school awareness programs, Agwater software, efficient irrigation techniques, crop water budget and other approaches, program delivery via workshops, seminars, newsletters, field days and demonstrations, etc.).
  - e. Water user pump testing and evaluation.
4. **Where appropriate, improve communication and cooperation among water suppliers, water users, and other agencies.**
- Schedule: Within one year
5. **Evaluate the need, if any, for changes in policies of the institutions to which the water supplier is subject.**
- Schedule: Ongoing
- Evaluate the policies of agencies that supply the water supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage. Initiate necessary modifications as practicable.
6. **Evaluate and improve efficiencies of water suppliers' pumps.**
- Schedule: Initiate within one year and test all pumps every two years thereafter, if in use.
- Many water suppliers operate booster pumps or groundwater pumps as part of their delivery facilities. Where water measurement is based on electrical meter observations, pumps should be tested regularly for accuracy of flows. A program to evaluate and improve the efficiencies of such pumps may result in energy savings or peak load reductions, or reveal capacity limitations due to inefficient facilities. Over the long term, the water supplier may be able to reduce operational costs and improve operational efficiency.

## **LIST B**

### **CONDITIONALLY APPLICABLE EFFICIENT WATER MANAGEMENT PRACTICES**

**(PRACTICES SUBJECT TO NET BENEFIT ANALYSIS IN ACCORDANCE WITH  
EXHIBIT E - PURSUANT TO ENDORSEMENT OF THE WMP)**

**1. Facilitate Alternative Land Use.**

Schedule: Ongoing as request and need arise

Facilitate voluntary compensated alternative use of lands, where appropriate, to assist in the control of problem drainage.

**2. Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils.**

Schedule: Initiate within three years

The use of recycled urban wastewater for irrigation provides an opportunity for reuse of an available water supply. Reuse of urban wastewater can be an important element in overall water management.

**3. Facilitate the financing of capital improvements for on-farm irrigation systems.**

Schedule: Initiate within five years

Financial aid to farmers may include cataloging available funding sources and procedures and/or obtaining funding, administering the program, and providing low-interest loans.

**4. Facilitate voluntary water transfers that do not unreasonably affect the water user, water supplier, the environment, or third parties.**

Schedule: Ongoing as request and need arise

Water suppliers may facilitate water transfers within the framework of the law, giving appropriate consideration to environmental and third party impacts.

**5. Line or pipe ditches and canals.**

Schedule: Initiate within five years

Undesirable seepage and evaporation losses in ditches, canals, and reservoirs may be reduced by replacement with pipelines or lining with bentonitic clay, concrete, or plastics/textile membranes. Consideration must be given to identifying potential wildlife impacts, loss or gain of farmable acreage, and contributions of seepage to conjunctive use and/or groundwater recharge programs before implementation. Seepage may be desirable for groundwater recharge or environmental benefits.

**6. Increase flexibility in water ordering by, and delivery to, the water users within operational limits.**

Schedule: Initiate within five years

Provide water users with the flexibility to: (1) receive water deliveries when it is time to irrigate; (2) apply the appropriate volume at the appropriate flow rate; (3) terminate water delivery when the irrigation is complete.

**7. Construct and operate water supplier spill and tailwater recovery systems.**

Schedule: Initiate within three years

Construction of water suppliers' spill recovery systems may increase efficiency or, in some cases, reduce losses of water from operational spills. In some areas, interception and recovery of farm tailwater may be advantageous. However, consideration must be given to the impacts of such activities on water quality, crop yields, soil salinity and other conditions, third parties, and the environment.

**8. Optimize conjunctive use of surface and groundwater.**

Schedule: Initiate within five years

Conjunctive use programs, widely practiced throughout California, make use of the storage capacity of groundwater aquifers to allow the redistribution of water from when and where it is available to when and where it is needed. Water suppliers will investigate and implement possible improvements in conjunctive use programs. Wherever possible, during wet years conjunctive use programs should attempt to use surplus water from within or outside the basin for the recharge of groundwater supplies or to reduce the use of those supplies.



**9. Automate canal structures.**

Schedule: Initiate within five years

Automation of canal structures may increase flexibility in water deliveries and increase the water supplier's control over its water supplies, thereby providing the opportunity to improve the efficiency of water use.

## **LIST C**

### **OTHER EFFICIENT WATER MANAGEMENT PRACTICES**

**(PRACTICES SUBJECT TO DETAILED NET BENEFIT ANALYSIS IN ACCORDANCE WITH EXHIBIT E - PURSUANT TO ENDORSEMENT OF THE WMP)**

#### **1. Water Measurement and Water Use Report.**

**Schedule:** Initiate within two years from endorsement of the WMP.

A water supplier will measure or calculate the volume of water delivered within a reasonable range of accuracy. Such measurement or calculation will be by individual water user or other reasonable measurement/calculation option. A water supplier will provide timely water use reports to water users through billings or advisories. This practice is intended to assure appropriate accounting for water uses and management.

A water supplier will include this EWMP in some form in the WMP. In order to determine the form of implementation, the water supplier will undertake a net benefit analysis pursuant to Exhibit E. The current form of implementation will suffice if the supplier demonstrates that no other form of measurement or calculation will improve net water management benefits over current practice.

#### **2. Pricing or Other Incentives.**

**Schedule:** Initiate within two years from endorsement of the WMP.

This practice consists of rate structures or financial incentives that promote efficient water management.

A water supplier will include this EWMP in some form in the WMP. In order to determine the form of implementation, the water supplier will undertake a net benefit analysis pursuant to Exhibit E. The current form of implementation will suffice if the net benefit analysis shows that no other form of pricing and incentives will improve net water management benefits over current practice.

Examples of forms of pricing or other incentives that would satisfy this EWMP include, but are not limited to, the following:

- a. A water supplier may implement a water rate structure which is volumetric, in whole or in part.

- b. A volumetric rate structure may be tiered, whereby the water supplier sets a higher price for that portion of water applied above crop evapotranspiration, leaching requirement, system evaporation, and other beneficial requirements. This practice penalizes growers who waste water. In areas of overdraft, caution must be used to prevent substitution of groundwater pumping as a result of this practice, unless such substitution is a stated purpose of the practice.
- c. A water supplier may implement a pricing arrangement or other financial incentives to improve the conjunctive use of surface and groundwater supplies. For example, in dry years the water suppliers may encourage, through higher prices for surface water, pumping more groundwater and leaving surface water for other beneficial uses such as environmental benefits. Conversely, in wet years pricing may be used to encourage greater use of surface water to facilitate recharge.
- d. Water suppliers may initiate or facilitate low-interest rate loans to water users for the purpose of improving on-farm irrigation efficiencies by use of gated pipes, pressurized systems, pipelines, lined ditches, etc.
- e. A water supplier may provide cooperative funding for on-farm technical irrigation management assistance, such as private consultants.
- f. A water supplier may facilitate marketing and transferring of water among water users. This may provide necessary financial incentives and may improve water use efficiency.

# EXHIBIT B

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## **EXHIBIT B**

### **DEVELOPMENT AND CONTENTS OF WATER MANAGEMENT PLAN**

This Exhibit provides guidelines for the development of Water Management Plans as outlined in the following steps.

#### **Step 1: Coordinate with Other Agencies and the Public**

**Intent:** To allow the submittal of joint WMPs and to ensure notification to interested parties that a WMP is being prepared.

It is recommended that signatories with mutual needs work together to develop agreements/MOUs to prepare and/or implement its WMP. The signatory water supplier will include public participation in its WMP development and implementation. The WMP should describe how participation by interested parties (local, regional, State, and federal agencies; special districts; land use agencies; and citizens groups [business, environmental, social]) was solicited. The Council will maintain and provide, upon request, a list of interested parties that the water supplier can notify about WMP preparation.

The WMP should describe mutual agreements/MOU with other signatories or agencies and specific public participation involvement.

#### **Step 2: Describe the Water Supplier**

**Intent:** To describe general physical information about the water supplier in order to form a basis for evaluating improvements by, and within, the service area, as well as to provide the basic information about physical aspects of the water supplier that may affect the potential for improved water management.

##### **A. History and Size**

Give a historical overview of the water supplier by filling in the following historical information.

Date of Formation: \_\_\_\_\_

Source of Water Supply (USBR, SWP, Local, GW, etc.):

\_\_\_\_\_

Gross Acreage: \_\_\_\_\_

Present Irrigated Acreage: \_\_\_\_\_

**B. Location and Facilities**

Describe the water conveyance and delivery system within the service area by filling in the following information about water delivery system.

Miles of Unlined Canals: \_\_\_\_\_

Miles of Lined Canals: \_\_\_\_\_

Miles of Pipelines: \_\_\_\_\_

Miles of Drains: \_\_\_\_\_

Reservoirs: Number \_\_\_\_\_ Capacity \_\_\_\_\_

Water Supplier Tailwater/Spill Recovery Systems?

Yes \_\_\_\_ No \_\_\_\_

Water Supplier Delivery System is:

On Demand \_\_\_\_\_

Modified Demand \_\_\_\_\_

Rotation \_\_\_\_\_

Other \_\_\_\_\_

Describe any additional information, as needed, to further clarify the water supplier's delivery system.

Provide a map of the service area showing, where possible, existing water diversion(s), distribution and drainage facilities, and water measurement devices.

If the water supplier has restrictions on its water source(s) that result(s) in operational constraints, describe the restriction and how it affects the water delivery operations.

If the water supplier's service area is expected to materially change within the next five years, describe the expected change.

### **C. Terrain and Soils**

Describe the topography of the water supplier's service area (i.e., hilly, flat, sloping to a water course). Indicate the impact of topography and soil conditions on water operations and management within the water supplier service area.

### **D. Climate**

Describe the general climate of the water supplier. Include average precipitation, and maximum and minimum temperatures. If areas within the water supplier's service area are known to have significantly different microclimates, describe how they affect water management decisions and operations.

### **E. Operating Rules and Regulations**

Describe or attach a copy of the water supplier's operating rules and regulations, including water allocation policy, lead time necessary for water orders and water shut-off, any policies regarding return flows, and/or drainage leaving the water supplier's service area, as appropriate.

### **F. Water Delivery Measurements or Calculations**

Describe how water deliveries to customers are currently measured or calculated. Describe the frequency and types of measurement (meters, calibrated weirs, meter gates, other), levels of accuracy, frequency of calibration, and frequency of maintenance.

### **G. Water Rate Schedules and Billing**

Describe the basis for water charges for agricultural uses. A copy of the water supplier's written operating rules and regulations will suffice if they describe the basis for water charges (i.e., by quantity, acre, crop, land assessment, or other charges).

If water use is billed by quantity, describe the rate structure (i.e., declining, uniform, or increasing block rate). Include the billing frequency (i.e., monthly, bimonthly, annually).

## **H. Water Shortage Allocation Policies**

Does the water supplier have a Water Shortage Allocation Policy?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, attach a copy of the policy.

If no, describe how reduced water supplies, including hardship water, are allocated. Describe any water supplier policies that address wasteful use of agricultural water and describe enforcement methods.

### **Step 3: Inventory Water Resources**

**Intent:** To describe the quantity and quality of water resources (sources, uses, return flows, and drainage) of the water supplier in order to form a basis for evaluating improvements by and within the water supplier. Items for evaluation are quantity and quality descriptions of the water supplier's surface water supply, groundwater supply, other water supplies, source water quality monitoring programs, water uses within the water supplier's service area, drainage from the water supplier's service area, and a water budget. In certain circumstances, specific information may not be available. The WMP will describe a process and time table for obtaining relevant information.

#### **A. Surface Water Supply**

Briefly describe the nature and amounts of each of the water supplier's surface water supplies (i.e., pre-1914 water rights, CVP Class I water contract for agriculture, SWP water contract for agriculture, exchange contract). Describe any restrictions on the time of diversion. Describe any anticipated changes in the water supplier's surface water supplies during the next five years. Provide the amount of water received from each source for each of the last five years.

#### **B. Groundwater Supply**

Describe the general characteristics of the groundwater basin(s) that underlie the water supplier. Provide a map locating water supplier's operated water wells and groundwater recharge areas, if applicable. If the water supplier operates a conjunctive use program, describe it. For managed groundwater basins, attach a copy of the management plan.



### **C. Other Water Supplies**

Identify any long-term water supplies not described above (i.e., drainage from upstream areas, transfer agreements with other entities).

### **D. Source Water Quality Monitoring Practices**

Describe any source water quality monitoring practices currently conducted for surface water and groundwater to determine water quality problem(s) that limit(s) use of source water for water supplier purposes.

### **E. Water Uses Within the Water Supplier's Service Area**

Describe water uses within water supplier's service area supported by the water supplier's water supplies (agricultural, environmental, recreational, municipal and industrial, groundwater recharge, exchanges and transfers, and other uses).

#### **1. Agricultural**

Tabulate the type and acreage of crops grown in the water supplier's service area, evapotranspiration rates for each crop, cultural practices, and the leaching requirement to maintain the salt balance in the soil profile. This data will be used in that section on "Water Accounting."

#### **2. Environmental**

Describe, if any, environmental resources supported by the water supplier's water supplies (i.e., wetlands, vernal pools, streams, wildlife refuges), and the amount of water supplied by the water supplier for these uses.

#### **3. Recreational**

Describe, if any, the type of water-related recreational facilities within the water supplier's service area which are supported by the water supplier's water supplies, and the amount of water required to maintain these facilities.

#### **4. Municipal and Industrial**

Describe, if any, the municipal and industrial water use.

## **5. Groundwater Recharge**

Describe, if any, the amount of water used for groundwater recharge, including the method of recharge.

## **6. Transfers and Exchanges**

Describe, if any, the amount of water that is transferred and/or exchanged into or out of the water suppliers service area, and for what uses. Describe any other significant water transactions, such as trades, wheeling, etc.

## **7. Other**

Describe any other uses of water.

## **F. Drainage from the Water Supplier Service Area**

Identify where surface and subsurface drainage goes (i.e., to wildlife refuge or other wildlife habitat, beneficial reuse within the service area, discharge to a river or other water course, another water service area, a groundwater aquifer, a saline sink, or evaporation ponds). If drainage leaves the service area and is reused, identify the discharge location and quantity. Describe any water quality monitoring programs for surface or subsurface drainage water (frequency of measuring and analyses performed). Identify any measured constituents (i.e., selenium, pesticides, boron) that limit reuse of the drainage water. Describe any usage limitation resulting from the drainage water quality.

## **G. Water Accounting**

Tabulate a water supply inventory for the water supplier based on a representative water supply year. Identify the basis used to develop the water supplier's representative water supply year.

### **1. Quantify Water Supplier's Water Supplies**

- a. All surface water supplies, imported to or originating within the water supplier's service area, by month.
- b. Groundwater extracted by the water supplier, by month.
- c. Effective precipitation, annually.

- d. Estimated groundwater extracted by non-water supplier parties within water supplier's boundaries (if records are not available, provide an estimate and basis for estimation).
- e. Recycled water.
- f. Other water supplies.

## 2. Tabulate Water Uses

- a. Applied water.
- b. Consumptive use by crop evapotranspiration and riparian vegetation.
- c. Seepage, evaporation, and operational spills.
- d. Water used for leaching and cultural practices (i.e., frost protection, soil reclamation).
- e. Municipal and industrial water use, if any.
- f. Water used for environmental purposes (including instream flows and wildlife habitat), if any.
- g. Water used for recreational purposes, if any.
- h. Groundwater recharge/conjunctive use.
- I. Water exchanges or transfers.
- j. Estimated deep percolation.
- k. Flows to saline sink or perched water table, if any.
- l. Total recycled water, if any.
- m. Water leaving the water suppliers service area, if any.
- n. Other.

### **3. Overall Water Budget**

Using the water supply and water use data tabulated above, prepare a water budget summary that quantifies to the best of your ability: (1) water supply delivered into the service area (surface and groundwater), (2) crop water use, (3) environmental water use, (4) other beneficial water uses (leaching, cultural practices, M&I, recreation, recharge, etc.), (5) evaporative and consumptive riparian vegetation losses, (6) recoverable and nonrecoverable percolation losses, and (7) recoverable and nonrecoverable surface and subsurface outflows.

#### **H. Supply Reliability**

Discuss the need for firmness of supply based upon factors of importance to the water supplier.

#### **Step 4: Review Previous Water Management Activities**

**Intent:** To allow recognition of past and current water supplier activities toward further improving water management. A water supplier shall do the following:

- A. List previously implemented water management practices or EWMPs and identifiable results.
- B. Describe current EWMP implementation efforts and summarize expected results.

#### **Step 5: Identify Efficient Water Management Practices**

**Intent:** To identify EWMPs that will accomplish improved (more efficient) water management.

EWMPs are categorized into three groups: (1) those that are generally applicable (Exhibit A, List A), (2) those that are conditionally applicable (Exhibit A, List B), and (3) other EWMPs (Exhibit A, List C). Generally applicable EWMPs are those that will be implemented by all signatory water suppliers unless extraordinary circumstances clearly demonstrate that a practice is inappropriate for a signatory. Conditionally applicable EWMPs will be implemented when they are technically feasible, economically feasible (benefits exceed costs) and financially affordable based on local conditions, and not environmentally/socially unacceptable. The WMP will document the details on why implementation of any singular EWMP is not justified.

**Step 6: Develop Schedules, Budgets, and Projected Results**

**Intent:** To identify a schedule for program implementation, the estimated budget needed for implementation, and the results expected from full implementation of the WMP.

Items for evaluation include a description of how each practice will be carried out (proposed actions, timetables, budgets, staffing needs), and projected results from full implementation of the practice(s) (i.e., changes in water use, energy usage, chemical inputs, improved yields). Whenever possible, quantify the projected results. It is understood that projected results are estimates based on the best available data and are subject to change, and that the results of some EWMPs can never be quantified.

**Step 7: Review, Evaluate, and Adopt the Water Management Plan**

**Intent:** To identify the process whereby the WMP is developed, reviewed, and adopted by the water supplier's governing board.

Signatory water suppliers will develop a WMP that provides the information necessary to implement justified EWMPs. The WMP and updates shall be formally adopted by the water supplier's governing board after public review and comment. The adopted WMP will be considered a business plan which identifies opportunities to improve water management. It is expected that justified EWMPs will be implemented as part of prudent resource management.

**Step 8: Implement Justified Efficient Water Management Practices**

**Intent:** To take EWMPs beyond the planning stage into implementation.

Because the WMP will be part of the water supplier's operations plan, implementation of justified EWMPs shall be an integral part of the water supplier's operations.

**Step 9: Monitor, Evaluate, and Update the Water Management Plan**

**Intent:** To ensure implementation of justified EWMPs, to monitor and evaluate the success of justified EWMPs, to allow for modification and/or revision to the scheduled implementation of the justified EWMPs, and to identify any constraints to EWMP implementation.

The status and implementation of each EWMP will be monitored, evaluated, and updated, as required, by the water supplier in the Progress Report (Exhibit C).

# EXHIBIT C

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## **EXHIBIT C**

### **AGRICULTURAL WATER SUPPLIERS' PROGRESS REPORT OUTLINE**

#### **I . Executive Summary**

#### **II. Water Management Plan Implementation Assessment**

Findings and Quantifications  
Progress  
Expenditures - Budgeted and Actual  
Staffing Levels  
Comments

##### **EWMPs Planned for Implementation**

Findings and Potential Quantifications  
Progress  
Expenditures - Budgeted  
Staffing Levels  
Comments

##### **Variations from Water Management Plan Implementation**

**EWMPs Not Implemented Because of Inapplicability**  
Reasons for Inapplicability

**EWMPs for Which Exemptions are Justified**  
Substantiation to Demonstrate Validity of Exemptions

#### **III. Factors Affecting Implementation/Planned Implementation of EWMPs**

Lack of Data  
Climatic Influences  
Implementation Difficulties  
Funding  
Comments

# EXHIBIT D

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D-046102



## **EXHIBIT D**

### **AGRICULTURAL WATER MANAGEMENT COUNCIL REPORT OUTLINE**

- I. Executive Summary
  - II. Implementation Assessment
    - Report by Agricultural Water Suppliers
    - Report by Environmental Interest Groups
    - Report by Other Groups
  - III. Results for 199\_\_\_\_
    - Summary of EWMP Implementations
      - Table 1. Status of EWMP Implementations in progress (by water supplier)
      - Table 2. Status of Pending EWMP Implementations (by water supplier)
    - Actions of the Council on Implementation of WMPs
      - Endorsements
      - No Action
    - Actions of the Council on Progress Reports
      - Endorsements
      - No Action
  - IV. Revision of EWMP List
    - Additions or Deletions
    - Other Modifications to Declaration or Exhibits
  - V. Recent Developments
    - Case Studies
      - Agricultural Water Management
      - On-farm Irrigation Efficiency
      - Legal Actions
    - Technical Advances
    - Publications
- List of Signatories [subcommittee members noted]

# EXHIBIT E

**EXHIBIT E**  
**NET BENEFIT ANALYSIS**  
**FOR**  
**EFFICIENT WATER MANAGEMENT PRACTICES**  
**BY AGRICULTURAL WATER SUPPLIERS**

**AB 3616 Water Management Act of 1990**

**November 13, 1996**

**E-i**

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## Introduction to Net Benefit Analysis for EWMPs

The purpose of evaluating and implementing EWMPs is to achieve more efficient water management where necessary. This exhibit describes an analytical framework for evaluating the EWMPs in Exhibit A, Lists B and C of the Memorandum of Understanding. The Net Benefit Analysis takes into consideration the technical, environmental, socioeconomic, financial, and third party factors affected by each EWMP, thus helping to determine whether and in what manner implementation may be appropriate.

The net benefit analysis provides guidance to agricultural water suppliers, who voluntarily sign the MOU, for evaluating which EWMPs are appropriate for their service area. Completing Table 1 (EWMP Analysis Summary Table), while minimizing unnecessary paperwork, is the ultimate goal of this Exhibit. The following description of how Table 1 is completed will help illustrate the process is not as complicated as it first appears.

Part 1 of this Exhibit allows for an exemption process that describes what is needed to fill in the first three columns on Table 1. Pursuant to Section 4.02 of this MOU, a detailed net benefit analysis is not required for EWMPs on List B if the EWMP has been fully implemented, is demonstrably inappropriate, or is technically infeasible. No further analysis is required if any one of the preceding conditions can be demonstrated to the satisfaction of the Agricultural Water Management Council.

Part 2 is the analytical procedure for EWMPs 1, 2, 3, and 4 in List B of the MOU. No net benefit analysis is required for these practices, so those columns are shaded in Table 1. The analysis will only help determine the extent to which the water supplier is able to facilitate implementing these practices.

Parts 3, 4, 5, and 6 contain the net benefit analysis for EWMPs 5-11 found in Lists B and C. Part 3 requests general information. Part 4 asks questions relating to environmental and third party effects. Parts 5 and 6 are the economic and financial analyses respectively. The analysis is similar for each EWMP so it becomes simpler after the initial analysis. EWMPs 5-9, from List B in the MOU, can be exempted from this analysis as described in Part 1; however, EWMPs 10 and 11 from List C in the MOU cannot.

Part 7 is a summary of analysis for each EWMP.

It is important to note that, pursuant to Section 4.01(E) of the MOU, a water supplier may request a variance from any EWMP if certain conditions are met.

## **Exemption Process**

Pursuant to Section 4.02, Exemption Criteria, a detailed net benefit analysis is not required and an EWMP will be exempted if any one of the following conditions can be clearly demonstrated to the satisfaction of the Council:

1. EWMP is being implemented at a satisfactory level; or
2. EWMP is demonstrably inappropriate; or
3. EWMP is technically infeasible, given current technology or prevailing local conditions.

Lack of legal authority or funds does not exempt a water supplier from performing a detailed net benefit analysis and inclusion of that EWMP and its analysis in the Water Management Plan (WMP). Legal and funding conditions may change with subsequent updates of the plans and make implementation of such EWMPs possible at a later time.

In the absence of such conditions, as above, a detailed net benefit analysis must be performed. Pursuant to the net benefit analysis, an EWMP may be exempted from implementation if the analysis demonstrates that any one of the following apply.

1. EWMP has a net negative economic benefit for the water supplier during the term of the plan, provided that the water supplier has made a good faith effort to share the costs with other anticipated beneficiaries of the plan; or
2. Adequate funds (including funds from other beneficiaries of the plan) are not available, and cannot reasonably be expected to be made available, for implementation of EWMP during the term of the plan; or
3. EWMP has net negative social benefit(s); or
4. Lack of legal authority (in accordance with the Section 4.02 of the MOU); or
5. EWMP has negative impacts on the environment or on third parties.

## A.B. 3616 EWMP Net Benefit Analysis Flowchart

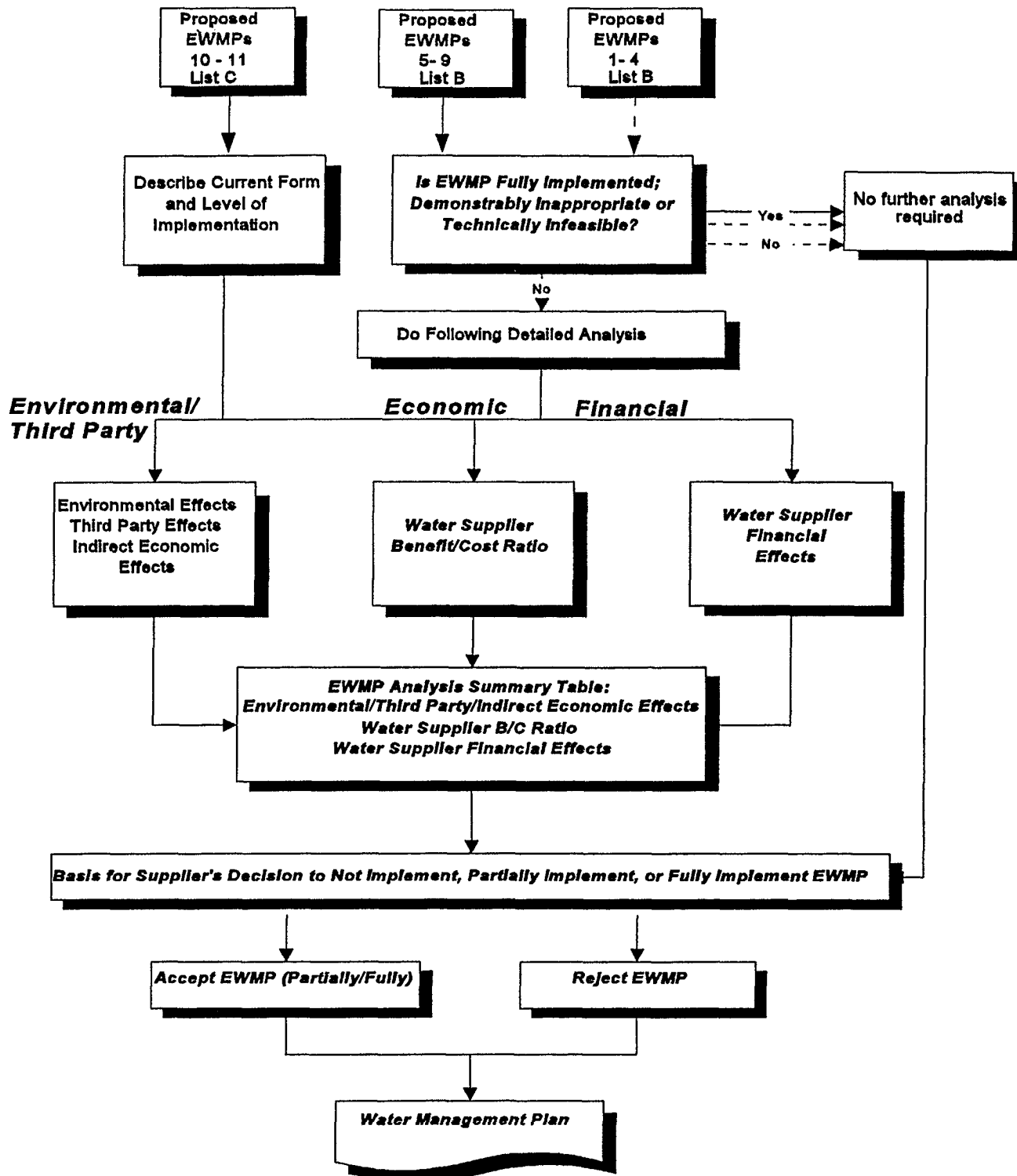


Table 1

EWMP Analysis Summary Table

	EWMP	EWMP Fully Implemented?	EWMP Demonstrably Inappropriate?	EWMP Technically Infeasible?	Environmental Effects				Third Party Allocation Effects				Indirect Economic Effects				Water Supplier B/C Ratio (25 Years)	Financial Analysis	EWMP Accepted? (Yes/No)
					B	N	I	IN	B	N	I	IN	B	N	I	IN			
List B Facilitating Practices	1. Facilitate Alternate Land Use																		
	2. Facilitate Use of Available Recycled Water																		
	3. Facilitate Financial Assistance																		
	4. Facilitate Voluntary Water Transfers																		
List B	5. Line or Pipe Ditches/Canals																		
	6. Increase Water Ordering/ Delivering Flexibility																		
	7. Construct/Operate Tailwater and Spill Recovery Systems																		
	8. Optimize Conjunctive Use																		
	9. Automate Canal Structures																		
List C	10. Water Measurement/ Water Use Update																		
	11. Pricing and Incentives																		

Shading = "Facilitate" EWMPs that use a different analysis to determine the extent a water supplier is able to facilitate them.

B = Beneficial ; I = Insignificant; N = Negative; IN = Indeterminate



## **PART 1**

### **Information to Determine if Detailed Analysis is Required for EWMPs 1-9**

Please respond to these questions before you start Part 2 for each EWMP. Part 1 may help you to determine whether you need a detailed analysis for each EWMPs 1 through 9.

EWMP: \_\_\_\_\_

**A. Is this EWMP being implemented at a satisfactory level?**

☐ Yes ☐ No

If Yes, Please provide details and attach any report or documentation regarding implementation of this EWMP. Additional information may be requested by the reviewing committee should documentation be inadequate. If you believe the EWMP has been fully implemented and needs no further consideration, check the "EWMP Already in Place" box on the EWMP Analysis Summary Table and move on to the next EWMP.

If No, Please respond to B.

**B. Is EWMP demonstrably inappropriate for implementation by water supplier?**

☐ Yes ☐ No

If Yes, Please provide details, and attach any report or documentation regarding why implementation of this EWMP is demonstrably inappropriate. Additional information may be requested by the reviewing committee should documentation be inadequate. If you believe the EWMP is demonstrably inappropriate and needs no further consideration, check the "EWMP Demonstrably inappropriate" box on the EWMP Analysis Summary Table and move on to the next EWMP.

If No, Please respond to C.

**C. Is EWMP technically infeasible given current technology or prevailing local conditions?**

☐ Yes ☐ No

If Yes, Please provide details and attach any report or documentation regarding why implementation of this EWMP is technically infeasible. Additional information may be requested by the reviewing committee should documentation be inadequate. If you believe the EWMP is technically infeasible and needs no further consideration, check the "EWMP technically infeasible" box on the EWMP Analysis Summary Table and move on to the next EWMP.

If No, For EWMPs 1-4 go to the detailed net benefit analysis, Part 2; for EWMPs 5-9 go to the detailed net benefit analysis, Part 3.

## PART 2

### Detailed Analysis for EWMPs 1, 2, 3, and 4

This Section deals with the Part 2 (detailed analysis) for EWMPs 1, 2, 3, and 4 only. These are EWMPs that the water supplier may facilitate. These EWMPs need no benefit/cost ratio determination. The water supplier must answer the following questions pertaining to each of EWMP 1, 2, 3, and 4 separately.

**IMPORTANT:** Did the water supplier's evaluation of this EWMP on Part 1 indicate a need for detailed analysis? If yes, please proceed below. If no, please skip this EWMP and move on to the next EWMP.

EWMP: \_\_\_\_\_

**A. Does this EWMP impact any of the other EWMPs on List B and/or List C ?**

\_\_\_\_ Yes \_\_\_\_ No

If Yes, Discuss the expected impacts.

If No, Continue.

**B. Does the water supplier have the legal authority to implement this EWMP?**

\_\_\_\_ Yes \_\_\_\_ No

If Yes, Continue on to C.

If No, Are legal restrictions based on water supplier policy or policies imposed from an outside entity?

\_\_\_\_ Water Supplier Policy \_\_\_\_ Outside Entity Policy

If water supplier policy, attach the policy and discuss whether this policy can be modified to allow for your legal participation in the implementation of this EWMP.

If outside entity policy, name the entity and attach a description of the policy. Include a discussion of whether a cooperative agreement can be established to eliminate institutional barriers to your participation in the implementation of this EWMP. Continue.

**C. Has the water supplier approached or been approached by any customers or other entities concerning the potential for implementing this EWMP?**

\_\_\_\_ Yes \_\_\_\_ No

If Yes, Describe any previous efforts including the initial proposal, the parties involved, and proposal results in terms of actions or role taken by the water supplier in facilitating this opportunity, any positive results, and any difficulties encountered in water suppliers efforts. Continue.

If No, Continue.

**D. If the water supplier were to be approached with a proposal endorsed by water users, would the water supplier be willing to take an active role in facilitating this request?**

☐ Yes ☐ No

If Yes, Attach a description of the role the water supplier could be reasonably expected to assume.

If No, Discuss why the water supplier cannot take a role in facilitating this EWMP.

**E. Does the water supplier have adequate funding sources, or could funds reasonably be made available to implement this EWMP?**

☐ Yes ☐ No

If Yes, Discuss the available funding sources. Continue.

If No, Discuss any financial constraints that exist. Continue.

**F. Could the water supplier provide any incentives for customers for this EWMP?**

☐ Yes ☐ No

If Yes, Describe the incentives that could potentially exist.

If No, Explain whether any other benefits exist for the water users by this EWMP.

**G. Does the water supplier have the ability to secure and/or administer low-interest loans for customers?**

☐ Yes ☐ No

If Yes, Discuss the level of funding support that the water supplier can reasonably be expected to provide in securing and/or administering the loans. Continue.

If No, Discuss any financial or other constraints that prohibit the water supplier from securing and/or administering loans. Continue.

## PART 3

### General Information for Detailed Analysis

Part 3 provides general information for EWMPs 5 through 11. Complete the following pages for those EWMPs identified by Part 1 as requiring a detailed analysis and EWMPs on List C.

#### EWMP 5. LINE OR PIPE DITCHES AND CANALS

**A. Does this EWMP impact any of the other EWMPs on List B and/or List C ?**

☐ Yes ☐ No

If Yes, Discuss the expected impacts.

If No, Continue.

**B. Complete the following matrix. Additionally, attach a description of how seepage flows were determined (e.g., consultant report, field study, water budget).**

Estimated length of canals, ditches in service area (miles)	
Ditches/canals currently unlined (miles)	
Ditches/canals currently lined (miles)	
Pipelines in service area (miles)	
Potential average seepage flows from unlined ditches/canals (ac-ft/yr)	
Potential average recovered seepage flows from unlined ditches/canals (ac-ft/yr)	
Estimated average seepage flows which exit and are lost to service area (ac-ft/yr)	
Estimated average seepage flows which exit and are lost to the basin (ac-ft/yr)	
Estimated average seepage flows which exit and are lost to the saline sink (ac-ft/yr)	

**C. Was this EWMP considered in coordination with any other EWMPs or other neighboring water suppliers?**

☐ Yes ☐ No

If Yes, Describe those proposals.

If No, Continue.

#### EWMP 6. INCREASE FLEXIBILITY IN WATER ORDERING AND DELIVERY TO THE WATER USERS WITHIN OPERATIONAL LIMITS

**A. Does this EWMP impact any of the other EWMPs on List B and/or List C?**

☐ Yes ☐ No

If Yes, Discuss the expected impacts.

If No, Continue.

B. Please attach a description of any additional facilities and/or components that may be needed to increase operational flexibility and how quickly a supplier can go from receiving an order to delivering an order. Include in this description: any facilities that may need to be installed to increase flexibility; how quickly a supplier can go from receiving an order to delivering an order; estimated project life span; estimated potential annual water savings; and how those savings were estimated. Also briefly discuss whether other variations of the project were considered.

C. Was this EWMP considered in coordination with any other EWMPs or other neighboring water suppliers?

\_\_\_ Yes \_\_\_ No

If Yes, Describe those proposals.

If No, Continue.

#### **EWMP 7. CONSTRUCT AND OPERATE WATER SUPPLIER'S SPILL RECOVERY AND TAILWATER REUSE SYSTEM**

A. Does this EWMP impact any of the other EWMPs on List B and/or List C?

\_\_\_ Yes \_\_\_ No

If Yes, Discuss the expected impacts.

If No, Continue.

B. Complete the following matrix (if unavailable, indicate "unknown" in the matrix). Additionally, please attach a description of how spill and seepage losses were determined (e.g., consultant report, field study, water budget).

Estimate average amount spill/tailwater produced (ac-ft/yr)	
Quantity of average spill/tailwater/drainage released from service area (ac-ft/yr)	

C. If available, provide information on the average spill/tailwater/drainage water quality leaving the service area in the matrix.

Constituent	Concentrations
Total Dissolved Solids/EC	
Selenium (if applicable)	
Boron (if applicable)	
Other Constituents of Concern that may be detrimental for soil or crop production: _____	

**D. Please attach a description of the potential spill/tailwater reuse system. Include in this description: number and types of recovery pumps to be used; expected capacity of the recovery system (cfs or gpm); estimated project life span; estimated potential annual water recovery (acre-feet); and how those recoveries were estimated and method of estimation. Also briefly discuss whether other variations of the project were considered.**

**E. Was this EWMP considered in coordination with any other EWMPs or other neighboring water suppliers?**

☐ Yes ☐ No

If Yes, Describe those proposals.

If No, Continue.

#### **EWMP 8. OPTIMIZE CONJUNCTIVE USE OF SURFACE WATER AND GROUND WATER**

**A. Does this EWMP impact any of the other EWMPs on List B and/or List C?**

☐ Yes ☐ No

If Yes, Discuss the expected impacts and continue.

If No, Continue.

**B. Please provide estimates in the following matrix.**

Ground water pumped in average supply year (ac-ft/yr)	
Maximum ground water pumping capability (ac-ft/yr)	
Surface water deliveries in normal year (ac-ft/yr)	
Surface water deliveries in deficit year (ac-ft/yr)	

**C. The goal of this EWMP is to optimize conjunctive use for the water supplier. It is understood that to optimize conjunctive use, components will vary drastically in any given year in order to most efficiently use available supplies.**

With this in mind, please attach a description of the current program (if any) and the proposed program. Include specifics when permanent facilities (e.g., ponding basins, regulatory reservoirs) or the equipment (e.g., extraction wells) would be needed. Otherwise, briefly discuss the following: method of conjunctive use (e.g., direct recharge, in-lieu exchanges with other suppliers, incidental recharge through overapplication of applied water, or a combination), location of permanent facilities or equipment to be installed for the program, estimated life span of facilities and equipment, estimated potential annual water savings and method of estimating savings, and potential sources of surface water to be used for recharge within and outside of the water supplier's service area. Additionally, please discuss whether possible conjunctive use opportunities with the other water suppliers were considered.

## **EWMP 9. AUTOMATE CANAL STRUCTURES**

### **A. Does this EWMP impact any of the other EWMPs on List B and/or List C?**

☐ Yes ☐ No

If Yes, Discuss the expected impacts.

If No, Continue.

### **B. Complete the following matrix.**

Number of locations within the distribution system which are automated	
Estimate the number of locations within the distribution system which could potentially be automated	

### **C. Please attach a description of the potential automated canal structure system. Include in this description: number and types of canal structures to be used; estimated project life span; estimated potential annual water savings (acre-feet); and how those savings were estimated. Also briefly discuss whether other variations of the project were considered.**

### **D. Was this EWMP considered in coordination with any other EWMPs or other neighboring water suppliers?**

☐ Yes ☐ No

If Yes, Describe those proposals.

If No, Continue.

## **EWMP 10. WATER MEASUREMENT AND WATER USE REPORT**

### **A. Does this EWMP impact any of the other EWMPs on List B?**

☐ Yes ☐ No

If Yes, Discuss the expected impacts.

If No, Continue.

### **B. Please describe the current and/or proposed water measurement/calculation practices. The description should include measurement/calculation of volume of water delivered within a reasonable range of accuracy. The description may be based on deliveries to individual water users or other reasonable measurement options.**

### **C. Was this EWMP considered in coordination with any other EWMPs or other neighboring water suppliers?**

☐ Yes ☐ No

If Yes, Describe those proposals.

If No, Continue.

## **EWMP 11. PRICING OR OTHER INCENTIVES**

**For a pricing structure to be considered an EWMP, it must encourage the more efficient use of water.**

### **A. Specific Objectives**

A clearly defined, specific objective must be established before a pricing incentive procedure is implemented.

### **B. Practices**

**Please identify those pricing and other incentives practices the supplier is considering and those that are currently in place as identified in the WMP. Has the water supplier considered the following practices?**

#### **(a) Pricing.**

##### **(1) Tiered water pricing (increasing block rates)**

☐ Yes ☐ No

If Yes, Please attach a description of the tiered water pricing structure that is to be implemented and whether it is revenue neutral or whether it will be used to establish other incentive programs.

If No, Please attach a description of the reason for its rejection.

This practice can set higher prices to penalize water users who apply greater amounts of water than is required for crop ET, leaching requirements, and other beneficial uses. Caution must be used to prevent the substitution of groundwater for surface water unless that is the stated objective.

##### **(2) Wet vs. dry year pricing structure**

☐ Yes ☐ No

If Yes, Please attach a brief description of the pricing structure that is proposed to be implemented and its effect (i.e., lower prices during wet years to encourage maximizing groundwater recharge, or higher prices in dry years to encourage groundwater pumping to leave surface water for other beneficial uses).



If No, Please attach a description of the reason for its rejection.

(3) Uniform block pricing

☐ Yes ☐ No

If Yes, Please attach a description of the changes to existing rate structure and the efficiency improvements expected from this change.

If No, Please attach a brief description of the reason for its rejection.

(4) Other

☐ Yes ☐ No

If Yes, Please attach a brief description.

If No, Disregard.

(b) Other incentives

(1) Supplier buy-back program

☐ Yes ☐ No

If Yes, Please describe the incentives provided by the program.

If No, Please describe the reason for its rejection.

If a supplier buys water back from growers, the growers should not substitute groundwater for surface water unless that is an intended purpose.

(2) Low interest loans

☐ Yes ☐ No

If Yes, Please attach a description of the funding source of these incentives or management improvements (e.g., contingency funds etc.).

If No, Briefly describe the reason for its rejection.

(3) Cost sharing for on-farm improvements

☐ Yes ☐ No

If Yes, Please attach a description of the funding source for these incentives.

If No, Please attach a brief description of the reason for its rejection.

**C. Does this EWMP impact any other EWMPs?**

☐ Yes ☐ No

If Yes, Discuss the expected impacts.

If No, Continue.

**E. Was this EWMP considered in coordination with any other EWMPs or other neighboring water suppliers ?**

☐ Yes ☐ No

If Yes, Attach a description of these proposals.

If No, Continue.

## PART 4

### EWMP Environmental, Third Party, and Indirect Economic Analysis

Part 4 addresses potential environmental, third party, and indirect economic impacts for EWMPs 5 through 11. After identifying which EWMPs will require a detailed analysis (from Part 1), please make copies of Part 4 so that you can use these pages as worksheets for your analysis. As you analyze each EWMP, fill in the name of the EWMP in the space provided below. Worksheets may be used for EWMPs 5 through 11.

EWMP: \_\_\_\_\_

NOTE: For the following sections, any indeterminate effects on the environment or third parties may require further study.

The intent of this process is to be broad enough to encompass most scenarios that would exist in all water supplier service areas. However, if your interpretation of any potential effect for the following questions differs from the one stated, please feel free to attach an explanation for that particular question.

#### ENVIRONMENTAL EFFECTS

##### A. Source of Supply

Will implementation of the EWMP result in reduced water demand in the water supplier's service area?  
\_\_\_\_ Yes \_\_\_\_ No \_\_\_\_ Unknown

If Yes,                      There may be a potential beneficial/negative impact, check the appropriate column on the Potential Environmental Effects Summary, Table 2, and attach a description of the intended use of the water (e.g. stored in reservoir, instream flows, etc.)

If No,                        Check Insignificant on Table 2, Potential Environmental Effects Summary.

If Unknown,              Check Indeterminate on the Potential Environmental Effects Summary Table 2.

##### B. Confined/Unconfined Ground Water Levels

Are there any habitats in the water service area that are supported/supplied by existing groundwater levels?  
\_\_\_\_ Yes \_\_\_\_ No \_\_\_\_ Unknown

If Yes,                      See below.

If No,                        Check Insignificant on Table 2. Attach a description explaining why implementation will not result in reduced diversions.

If Unknown,              Check Indeterminate.

If Yes, Will implementation of the EWMP affect the groundwater levels?  
☐ Yes ☐ No ☐ Neither ☐ Unknown

If Yes, Check appropriate column on Table 2. Include a description of the habitat, and how the habitat would be impacted by changes in the groundwater levels.

If No or Neither, Check Insignificant on Table 2. Please attach a description of the habitat and estimated increased supply.

If Unknown, Check Indeterminate on Table 2.

**C. Shallow Groundwater (does not apply to EWMP 9)**

Is the water supplier located in an area where shallow groundwater and/or water quality problems (i.e., salinity, selenium) limit the use of land and/or drainage water?  
☐ Yes ☐ No ☐ Unknown

If Yes, Do you anticipate that shallow groundwater conditions will improve or degrade as a result of implementation of the EWMP?  
☐ Improve ☐ Degrade ☐ Neither ☐ Unknown

If Improve, Improved groundwater conditions should create an overall environmental benefit; check Beneficial. Please attach a description of improved conditions with respect to water levels and quality (in terms of TDS and/or known constituents of concern).

If Degrade, Check Negative. Please attach a description of the expected degraded conditions with respect to water levels and quality (in terms of TDS and/or known constituents of concern).

If No, Check Insignificant.

If Unknown, Check Indeterminate.

If Neither, Check Insignificant. Attach a description explaining why shallow groundwater will not be impacted.

If Unknown, Check Indeterminate.

**D. Instream Flows**

Does the water supplier's distribution system contribute to flows in any other water courses?  
☐ Yes ☐ No ☐ Unknown

If No, Check Insignificant.

If Unknown, Check Indeterminate.

If Yes, Will implementation of the EWMP affect flows to any other water courses?  
\_\_\_ Yes \_\_\_ No \_\_\_ Neither \_\_\_ Unknown

If Yes, Check appropriate column on Table 2. Include a description of the positive or negative impacts on the flows, and how the habitat would be impacted by changes.

If No or Neither, Check Insignificant on Table 2.

If Unknown, Check Indeterminate on Table 2.

#### **E. Drain Flows**

Does the water supplier's service area have drains that supply or support habitat?  
\_\_\_ Yes \_\_\_ No \_\_\_ Unknown

If No, Check Insignificant.

If Unknown, Check Indeterminate.

If yes, Will these drain flows be reduced as a result of practices associated with the EWMP?  
\_\_\_ Yes \_\_\_ No \_\_\_ Unknown

If Yes, there is a potential negative impact; check Negative and include a description on the adverse effects to any habitat.

If Unknown, Check Indeterminate.

If No, Do you anticipate that drain water quality will improve or degrade as a result of implementing the EWMP?  
\_\_\_ Improve \_\_\_ Degrade \_\_\_ Neither \_\_\_ Unknown

If Improve, Improved drain water conditions should create an overall environmental benefit; check beneficial. Please attach a description of improved conditions with respect to quality (in terms of TDS and/or known constituents of concern).

If Degrade, Check Negative. Please attach a description of the expected degraded conditions with respect to quality (in terms of TDS and/or known constituents of concern).

If Neither, Check Insignificant.

If Unknown, Check Indeterminate.

#### **F. Fertilizer/Herbicide/Pesticide Use**

Are pesticides/herbicides used to control vegetative growth or burrowing along ditches/canals?

☐ Yes ☐ No

If No, Check Insignificant.

If Yes, Will pesticide/herbicide use by the water supplier along ditches/canals be decreased or increased as a result of piping or lining?

☐ Decrease ☐ Increase ☐ Neither ☐ Unknown

If Neither, Check Insignificant on Table 2.

If Unknown, Check Indeterminate on Table 2.

If Decrease/

Increase, There may be a potential impact on the environment. Please check the appropriate column on Table 2 and attach a description of the potential impacts of the increase/decrease in pesticide use.

#### **G. Soil Erosion**

Will implementation of the EWMP reduce the current amount of soil erosion in the water supplier service area?

☐ Yes ☐ No ☐ Unknown

If Unknown, Check indeterminate.

If Yes/No, There may be a potential impact on the environment. Please check the appropriate column on Table 2 and attach a description of the potential impacts of the EWMP.

#### **H. Field Burning and/or Fugitive Dust (for EWMP 5)**

Is vegetation removed from canal banks by burning?

☐ Yes ☐ No

If No, Check Insignificant.

If Yes, Would this burning decrease as a result of lining or piping ditches/canals?

☐ Yes ☐ No ☐ Neither ☐ Unknown

If Yes/No, There may be a potential impact on the environment. Please check the appropriate column on Table 2 and attach a description of the potential impacts of the EWMP.

If Neither,      Check Insignificant.

If Unknown,      Check Indeterminate.

**I. Energy Use**

Would this EWMP increase or decrease energy use (e.g., pump use, canal structure controls, etc.)?  
\_\_\_ Decrease \_\_\_ Increase \_\_\_ Neither \_\_\_ Unknown

If Decrease,      Less energy consumption and/or lower air emissions would be potential environmental benefits; check beneficial.

If Increase,      Check Negative.

If Neither,      Check Insignificant.

If Unknown,      Check Indeterminate.

**J. Do ditches/canals that might be considered for lining/piping supply or support any of the following habitats:**

Yes	No
___	___ Vernal pools and swales
___	___ Riparian
___	___ Open water bodies
___	___ Marshes (permanent or seasonal)

Please attach a description to any "Yes" answers to the previous question. Include in your description any known or potential sensitive plant and wildlife species in the habitat and the approximate size and location of the habitat. If the habitat is a series of smaller parcels (e.g., vernal pools) just describe the general location. Also identify your source of information. Finally, on Table 2 check whether you believe that the potential impact to the habitat would be beneficial, negative, insignificant, or indeterminate; attach a description and justification.

**THIRD-PARTY EFFECTS**

**A. Confined/Unconfined Ground Water Levels**

Will implementation of the EWMP affect groundwater elevations?  
\_\_\_ Yes \_\_\_ No \_\_\_ Unknown

If Yes,      Rise or fall of the groundwater levels could have potential benefit or negatively affect the third-party groundwater users in the basin; check appropriate column on Table 3, Potential Third-Party Effects Summary. Attach a description of the anticipated effect on groundwater levels and third-party users.

If No, Check appropriate column on Table 3. Attach a description as to why you expect groundwater levels to remain unchanged.

If Unknown, Check Indeterminate on Table 3.

## **B. Instream Flows**

Do water supplier distribution flows contribute to any natural streams?

☐ Yes ☐ No ☐ Unknown

If No, Check Insignificant, go to C.

If Unknown, Check Indeterminate.

If yes, Will implementation of the EWMP decrease or increase instream flows to any streams that supply or support any third-party?

☐ Decrease ☐ Increase ☐ Neither ☐ Unknown

If Decrease, There may be a potential negative effect to third-party users; check Negative on Table 3. Include a description of the potential adverse effects on third-party users by reduced instream flows.

If Increase, Creating additional supplies may result in a benefit; check Beneficial. Please attach a description of the potential benefits and estimated increased supply.

If Neither, Check Insignificant.

If Unknown, Check Indeterminate.

## **C. Drain Flows**

Do drain flows supply or support any third-party user?

☐ Yes ☐ No

If Yes, Do you anticipate that drain water conditions will be affected as a result of implementation of the EWMP?

☐ Yes ☐ No ☐ Unknown

If Yes, Improved or adversely affected drain water may have an overall benefit or detrimental effects to the third parties; check appropriate column on Table 3. Please attach a description of drain water conditions with respect to quality (in terms of TDS and/or known constituents of concern).

If No, Check appropriate column on Table 3. Please attach a description of the expected degraded conditions with respect to quality (in terms of TDS and/or known constituents of concern).



If Unknown,      Check Indeterminate.

**D. Herbicide/Pesticide Use (applies only to EWMP 5)**

Are pesticides/herbicides used to control vegetative growth or burrowing along distribution system banks?

☐ Yes ☐ No

If Yes,      Does water that flows through water supplier ditches or canals continue on to third-party users (such as M&I)?

☐ Yes ☐ No

If No,      Check Insignificant.

If Yes,      Will fewer pesticides/herbicides be applied by the agricultural water supplier as a result of implementing the EWMP?

☐ Yes ☐ No

If No,      Check Insignificant.

If Yes,      There may be a potential impact on third parties. Please check the appropriate column on Table 3 and attach a description of the potential impacts of the EWMP.

If No,      Check Insignificant.

**E. Wind/Water Soil Erosion**

Will implementation of the EWMP reduce the current amount of soil erosion in the water supplier service area?

☐ Yes ☐ No ☐ Unknown

If Yes,      There may be a potential impact on third parties. Please check the appropriate column on the Table 3 and attach a description of the potential impacts of the EWMP.

If no,      Check insignificant.

If Unknown,      Check indeterminate.

**INDIRECT ECONOMIC EFFECTS**

**A. Will the EWMP affect local economies through changes in on-farm operations (indirect economic effects)?**

☐ Yes ☐ No ☐ Unknown

If Yes,      Please describe.

If No, Check Insignificant on Table 4, Potential Indirect Farm Production Effects Summary, Sections B, C, and D.

If Unknown, Check Indeterminate on Table 4, Sections B, C, and D.

**B. Will practices associated with implementation of the EWMP increase or decrease farmers' purchases of crop inputs such as seed, fertilizer, irrigation equipment, etc.?**

☐ Increase ☐ Decrease ☐ Neither ☐ Unknown

If Increase, There may be a potential benefit; check beneficial on Table 4, Section B.

If Decrease, There may be a potential negative effect; check Negative on Table 4, Section B.

If Neither, Check Insignificant.

If Unknown, Check Indeterminate.

**C. Will practices associated with implementation of the EWMP increase or decrease the hiring of local (county) farm workers?**

☐ Increase ☐ Decrease ☐ Neither ☐ Unknown

If Increase, There may be a potential benefit; check beneficial on Table 4, Section C.

If Decrease, There may be a potential negative effect; check Negative.

If Neither, Check Insignificant.

If Unknown, Check Indeterminate.

**D. Will practices associated with the implementation of the EWMP increase or decrease the local (county) processing of farm produce (examples—canning of nuts, fruits, and vegetables; milk production supported by cows/pasture; etc.)?**

☐ Increase ☐ Decrease ☐ Neither ☐ Unknown

If Increase, There may be a potential benefit; check Beneficial on Table 4, Section D.

If Decrease, There is a potential negative effect; check Negative.

If Neither, Check Insignificant.

If Unknown, Check Indeterminate.

**Table 2. Potential Environmental Effects Summary**

Section	Evaluated Component	Beneficial	Negative	Insignificant	Indeterminate
A	Source of Supply				
B	Confined/Unconfined Groundwater Levels				
C	Shallow Groundwater Elevations				
D	Instream Flows				
E	Drain Flows				
F	Fertilizer/Herbicide/ Pesticide Use				
G	Soil Erosion				
H	Field Burning and Fugitive Dust				
I	Energy Use				
J	Vernal Pools and Swales				
K	Riparian Habitat				
L	Open Water Bodies				
M	Marshes (permanent or seasonal)				

**Table 3. Potential Third-Party Effects Summary**

Section	Evaluated Component	Beneficial	Negative	Insignificant	Indeterminate
A	Confined/Unconfined Ground Water Levels				
B	Instream Flows				
C	Drain Flows				
D	Herbicide/Pesticide Use				
E	Wind/Water Soil Erosion				

**Table 4. Potential Indirect Farm Production Effects Summary**

Section	Evaluation Component	Beneficial	Negative	Insignificant	Indeterminate
B	Farm Inputs				
C	Local Farm Labor				
D	Processing of Farm Produce				

## PART 5

### EWMP Economic Analysis

Part 5 evaluates the economic benefits and costs of EWMPs 5 through 11. Worksheets 1 through 4 enable the water supplier to develop a benefit/cost (B/C) ratio for these EWMPs from the water supplier perspective. Worksheets can be used for EWMPs 5 through 11.

#### **Worksheet 1. EWMP Water Supplier Effects**

- **How much water is estimated to be conserved annually as a result of the EWMP?**

\_\_\_\_\_ acre-feet

Please discuss your assumptions and methodology for deriving this estimate.

- **Does the EWMP result in water supplier capital costs and/or annual operation and maintenance costs?**

\_\_\_ Yes \_\_\_ No \_\_\_ Unknown

If Yes, Please complete Worksheet 2 and continue.

If No or Unknown, Please describe.

- **Would the EWMP reduce current water supplier water purchases, water diversions, and/or groundwater pumping?**

\_\_\_ Yes \_\_\_ No \_\_\_ Unknown

If Yes, Please complete Worksheet 3a and continue.

- **Would the EWMP delay or eliminate the need to complete future water supply augmentation and/or distribution projects?**

\_\_\_ Yes \_\_\_ No \_\_\_ Unknown

If Yes, Please complete Worksheet 3b.

- **Would the EWMP result in additional sales of water supplies to existing customers, new customers, and/or other agencies?**

\_\_\_ Yes \_\_\_ No \_\_\_ Unknown

If Yes, Please complete Worksheet 3c.

## **Worksheet 2. EWMP Water Supplier Costs**

### **2a. EWMP Water Supplier Capital Costs**

Complete the following worksheet for EWMP capital costs:

Capital Cost Category (a)	Item (b)	Cost (c)	Contingency Cost		Subtotal (e + e) (f)
			Percent (d)	Dollars (c x d) (e)	
Planning			0.15		
Land			0.15		
Structures			0.15		
Equipment			0.15		
Mitigation			0.15		
Other			0.15		
Subtotal Capital Costs					
Deduct Expected Salvage Value After 25 Years					
Total Capital Costs					
Capital Recovery Factor (6%, 25 Years)					0.0782
Annual Capital Costs (Total Costs x CRF)					

Enter Annual Capital Costs into Worksheet 2c, Column (a).

### **2b. EWMP Water Supplier Annual O&M Costs**

Complete the following worksheet for EWMP annual O&M costs:

Annual Operating Costs  (a)	Annual Maintenance Costs  (b)	Annual Other Costs <sup>1</sup>  (c)	Total O&M Costs (a + b + c) (d)

<sup>1</sup>Other annual costs not included in O&M, such as annual environmental mitigation costs.

Enter Total O&M Costs into Worksheet 2c, Column (d).

## 2c. EWMP Water Supplier Costs/AF Summary

Complete the following worksheet for EWMP cost/af summary:

Annual Capital Costs <sup>1</sup>  (a)	Annual O&M Costs <sup>2</sup>  (b)	Total Annual Costs (a + b) (c)	Annual Conserved Water <sup>3</sup> (AF) (d)	Cost/ AF (c/d) (e)

<sup>1</sup>From Worksheet 2a.

<sup>2</sup>From Worksheet 2b.

<sup>3</sup>From Worksheet 1.

Enter the cost/af onto Worksheet 4, EWMP Cost.

## Worksheet 3. EWMP Water Supplier Benefits

**Note:** The value of the conserved water to the water supplier is determined by how the conserved water is used. If the conserved water allows the water supplier to reduce the amount of water purchased, diverted or pumped, then the value is equal to the avoided cost of obtaining water from the supplier's most expensive current water source. However, if the water supplier needs to augment water supplies to meet future demands, then the value to the water supplier is measured by the least-cost alternative that can be eliminated or delayed because of the EWMP. Finally, if the water supplier plans to sell all or part of the conserved water to existing customers, new customers or other agencies, then the value can be measured by the price for which it is sold, thus generating additional revenue. Choose the most appropriate method.

### 3a. Water Supplier Avoided Costs--Current Sources

Complete the following worksheet for current sources of supply that would be avoided with the implementation of the EWMP:

Sources of Supply Avoided  (a)	Amount of Water (af)  (b)	Annual O&M Costs (\$/af)  (c)	Source to be Used as Benefit Measure  (d)

Enter the avoided cost (\$/af) from the sources selected into Worksheet 4, EWMP Benefit.

### 3b. Water Supplier Avoided Costs--Future Sources

Complete the following worksheet for future sources eliminated or delayed because of implementation of EWMP:

Alternative  (a)	Total Capital Costs  (b)	Capital Recovery Factor <sup>1</sup>  (c)	Annual Capital Costs (b x c)  (d)	Annual O&M Costs  (e)	Total Annual Costs (d + e)  (f)	Annual Yield  (g)	Cost/af  (f / g) (h)
		0.0782					
		0.0782					
		0.0782					
		0.0782					

<sup>1</sup>For a 25-year period with 6% discount rate.

Which alternative is to be selected as benefit measure? Explain:

Enter the cost/af value for alternative selected into Worksheet 4, EWMP Benefit.

### 3c. Water Supplier Revenue Effects

Complete the following worksheet:

Parties Purchasing Conserved Water (a)	Amount of Water (af) (b)	Selling Price (\$/af) (c)	Expected Frequency of Sales (%) <sup>1</sup> (d)	Expected Selling Price (\$/af) (c x d) (e)	"Option" Fee (\$/af) <sup>2</sup> (f)	Total Selling Price (\$/af) (e + f) (g)

<sup>1</sup>During a 25-year analysis period, how many years are water sales expected to occur? For example, water sales to farmers might be expected to occur 90% of the years, whereas the frequency to other agencies might be 50% of the years.

<sup>2</sup>"Option" fees are paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

Enter the expected selling price (revenue) into Worksheet 4, EWMP Benefit.

#### **Worksheet 4. EWMP Water Supplier Benefit/Cost Ratio**

Complete the following worksheet:

Benefits and Costs	
EWMP Benefit (\$/af) <sup>1</sup>	
EWMP Cost (\$/af) <sup>2</sup>	
Benefit/Cost Ratio	

<sup>1</sup>From Worksheet 3a, 3b or 3c.

<sup>2</sup>From Worksheet 2.



## **Part 6**

### **EWMP Financial Analysis**

**A water supplier may claim an exemption if:**

"Adequate funds (including funds from other beneficiaries of the plan) are not available, and cannot reasonably be expected to be made available, for implementation of the EWMP during the term of the plan." (MOU, Section 4.02)

If water supplier is claiming an exemption based upon the lack of available funding, please discuss the reasons for this finding. Please include a copy of your latest financial statement and a list of other potential plan beneficiaries who have been contacted.

## Part 7

### Summary of Analysis

#### Initial Evaluation Table (from Part 1)

EWMP	Yes	No
Fully Implemented		
Demonstrably Inappropriate		
Technically Infeasible		

#### Potential Environmental Effects Summary Table (from Part 4)

Section	Evaluated Component	B	N	I	IN
A	Source of Supply				
B	Confined/Unconfined Groundwater Levels				
C	Shallow Groundwater Elevations				
D	Instream Flows				
E	Drain Flows				
F	Fertilizer/Herbicide/Pesticide Use				
G	Soil Erosion				
H	Field Burning and Fugitive Dust				
I	Energy Use				
J	Vernal Pools or Swales				
K	Riparian Habitat				
L	Open Water Bodies				
M	Marshes (permanent or seasonal)				

#### Potential Third-Party Effects Summary Table (from Part 4)

Section	Evaluated Component	B	N	I	IN
A	Confined/Unconfined Groundwater Levels				
B	Instream Flows				
C	Drain Flows				
D	Herbicide/Pesticide Use				
E	Wind/Water Soil Erosion				

#### Indirect Economic Effects Summary Table (from Part 4)

Section	Evaluated Component	B	N	I	IN
B	Farm Inputs				
C	Local Farm Labor				
D	Processing of Farm Produce				

**EWMP Economic Analysis (from Part 5)**

<b>Enter Water Supplier B/C Ratio</b>	
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**EWMP Financial Analysis (from Part 6)**

	<b>Yes</b>	<b>No</b>
<b>Can adequate funding be expected to be made available?</b>		

	<b>Yes</b>	<b>No</b>
<b>Is EWMP accepted?</b>		

Please provide here and in the WMP a discussion of why the EWMP is accepted or rejected for implementation. Please include a discussion of estimated water savings, environmental effects, third-party effects , etc. for this EWMP.

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